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# *Foreign Agriculture*

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FRONT COVER

### A Dairy Farm in the Netherlands

A windmill used for drainage in the lowland country. (Photo by Dr. Montell E. Ogden.)

BACK COVER

### Map of Europe and the Near East—Wheat Acreage

More than 48 percent of the world's wheat acreage is in this area. Much of it, however, is low yielding. To understand the relationship between acreage and production in this area, the reader should compare this map with the one on page 7.

NEWS NOTES

### Australian Agricultural Attaché in Washington

*Louis V. Toyne*, Agricultural Attaché in Australia, returned to Washington early in December for consultation with staff members. Mr. Toyne has been with the American Consulate General's Office for the past 3½ years.

### Dr. Cheatham Back From Western Europe

Late in November, *Dr. Clifton B. Cheatham, Jr.*, International Commodities Specialist, returned to Washington from Western Europe where he spent 8 out of the past 10 months. Dr. Cheatham was making a study of the general tobacco situation and encouraging the use of American-grown tobacco in Western European countries.

### Mr. Jackson Studied Kenaf in the Caribbean

*Edward H. Jackson, Jr.*, OFAR Consultant, spent the first 2 weeks of December in several of the Caribbean countries studying kenaf cultivation and extraction methods, with a view to suggesting alterations in these practices that would result in kenaf fiber more suitable from the manufacturer's point of view. This fiber is a basic material for burlaplike fabric.

### ICB Official Attends Canadian Conference

*Robert L. Gastineau*, Acting Head, Grain and Feed Division, International Commodities Branch, attended the Dominion Provincial Agricultural Conference in Ottawa early in December. At this conference, Canadians sum up the current agricultural year and decide upon production goals and an agricultural program for the coming year.

Our indebtedness for illustrative material is gratefully acknowledged as follows: Page 8 and page 10 (column 2), FAO; page 10 (column 1), The Evening Star; pages 12–15, Nathan Koenig; pages 16–17, the Government of India; page 20, the Office of Puerto Rico; page 22, the Norwegian Information Services.

CORRECTION: In December issue of this magazine, p. 268, column 1, last sentence should read: There are only 6,172 farmers in Turkey who own farms of 125 acres or more.

FOREIGN AGRICULTURE — ALICE I. FRAY, EDITOR

**A monthly publication of the Office of Foreign Agricultural Relations of the United States Department of Agriculture, Washington, D. C. The matter contained herein is published by direction of the Secretary of Agriculture as administrative information required for proper transaction of the public business, with the approval of the Director of the Budget. Copies may be obtained from the Superintendent of Documents, Government Printing Office, Washington 25, D. C., at 15 cents per copy, or by subscription at the rate of $1.50 per year, domestic; $2.00 per year, foreign. Postage stamps will not be accepted in payment.**

# Agricultural Geography Of Europe and the Near East

***Food production depends on a number of factors —climate, vegetation, soils, mechanization, and fertilization. This new publication discusses them as they apply to Europe and the Near East.***

*by* **REGINALD G. HAINSWORTH**

A new publication, Agricultural Geography of Europe and the Near East, is announced by the Office of Foreign Agricultural Relations.

This comprehensive volume helps fill the steadily growing need for information on influences affecting agriculture in the areas considered.

The Geography discusses many of the physical factors in Europe and the Near East as they relate to agriculture and international trade and gives special emphasis to certain selected commodities in which the United States farmer has a particular interest. Crop and livestock statistics and physical factors are shown on the maps in such a manner that the reader may quickly see how they affect agricultural production and the food supply of the people in the countries discussed.

The Geography is approximately 10 x 14 inches in size. It consists of 74 pages, including text and 63 illustrations, of which 15 are colored maps.

Five of the colored maps show such physical factors as vegetation, soils, relief, annual rainfall, and length of growing season. The nine international trade maps are reproduced in red and black, and one population map is in black and green.

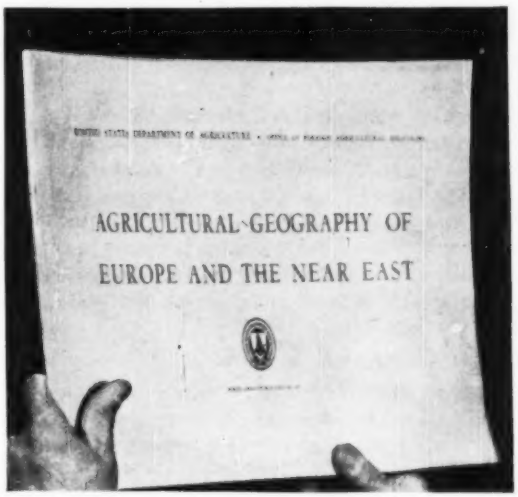
It is not possible to reproduce a large number of illustrations in this magazine or to show the maps in color. It seemed advisable, therefore, to select maps illustrating a single subject and let them indicate the general type of illustrations that appear in the volume. Wheat has been used for this purpose since grains are significant in the European food supply and wheat is the principal bread grain. The illustrations shown here are about one-fourth the size of those in the Geography.

About one-third of the volume is text. It discusses production, trade, and consumption of agricultural products in Europe; climate; natural vegetation; soils; population; land utilization; the crop pattern; the livestock industry; and Europe's position in international agricultural trade.

The following excerpts will give the reader some indication of the text.

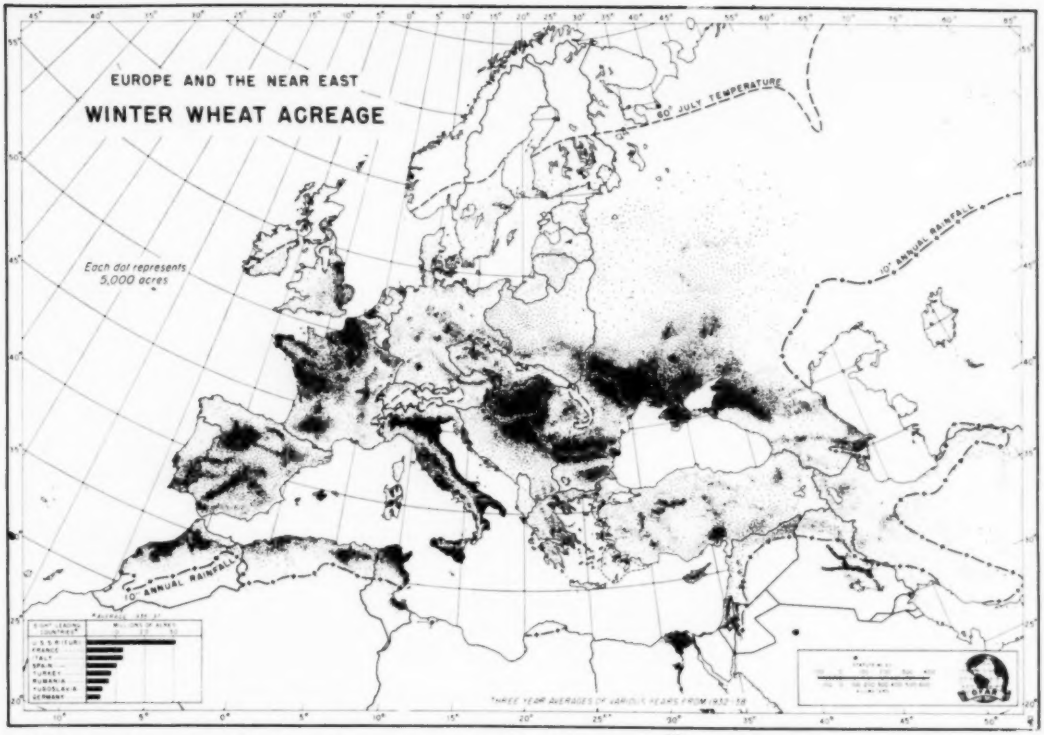
Europe (excluding the Soviet Union as delimited in 1937) covers less than 5 percent of the earth's surface and has more than 15 percent of its population. It is one of the most highly developed agricultural and industrial regions of the world. Europeans, with comparatively high living standards, consume a disproportionately large share of the world's food supplies. European industries, producing partly for export markets, ordinarily absorb a still larger proportion of the world's supplies of textile fibers and rubber.

European production has long been insufficient to meet the Continent's requirements, even of those agri-




**This newly published agricultural geography is a 74 page volume containing 63 illustrations, many of which are colored maps.**

**Mr. Hainsworth is Economic Geographer, Division of Foreign Information, OFAR.**




**The annual acreage of fall-sown wheat in Europe and the Near East averaged 132,870,000 acres during the period 1935–37. Except in eastern USSR, practically all wheat sown in Europe, the Near East, and North Africa is fall sown.**

**When large winter-wheat acreages occur in areas with less than 10 inches of annual precipitation, the land is irrigated. Insignificant quantities of wheat are grown in areas with little more than 10 inches of annual precipitation. Only small proportions of such land are in crops, and fall-sown barley is a strong competitor.**

**The 60-degree isotherm of July temperature is the northern borderline for winter wheat in western Europe. Farther east, shortness of the growing season and hard winters push the line considerably below the 60-degree isotherm.**

cultural products that are climatically suited to it. Farm output has not kept pace with the growth of population and the improvement in living standards.

It was Europe's demand for food and raw materials that gave rise to modern world trade in agricultural products. Europe has remained the great outlet for agricultural export surpluses, in spite of the increasing trend toward self-sufficiency during the period between World Wars I and II.

### *The Crop Pattern*

Several important physical factors determine the crop pattern of Europe: The large areas of very poor soil under cultivation; the wide expanse of territory with a Mediterranean climate—a long growing season accompanied by mild temperatures; and the climatic influences of the warm moist air currents from the Atlantic Ocean on the west and northwest.

A wide variety of crops grow in the areas shown on the maps in the Geography. There are no tropical crops, of course, and subtropical crops are grown only as far north as the Alps and the Pyrenees. All important grain crops and many of the root and forage crops are grown in Europe. The producing areas of these, as well as other crops, are shown in the Geography by acreage-distribution dot maps.

Europe's share in the crop output of the world is not large. However, there are a few exceptions, such as rye, oats, potatoes, and sugar beets. Although these crops are grown over wide areas and in large quantities, they are not any more important to the total food supply of the Continent, as it relates to world output, than are those crops that belong to the intermediate group, such as wheat, corn, barley, dry legumes, and citrus fruit.

Cereal crops occupy about 41 percent of Europe's arable land, with wheat the most widely grown. Forage and root crops are next in importance, although they are practically absent from the areas with a Mediterranean climate. Dry legumes, oilseeds, and fiber crops rank last among the principal groups of arable-land crops. Much of northwestern Europe is in rich pastures and meadows.

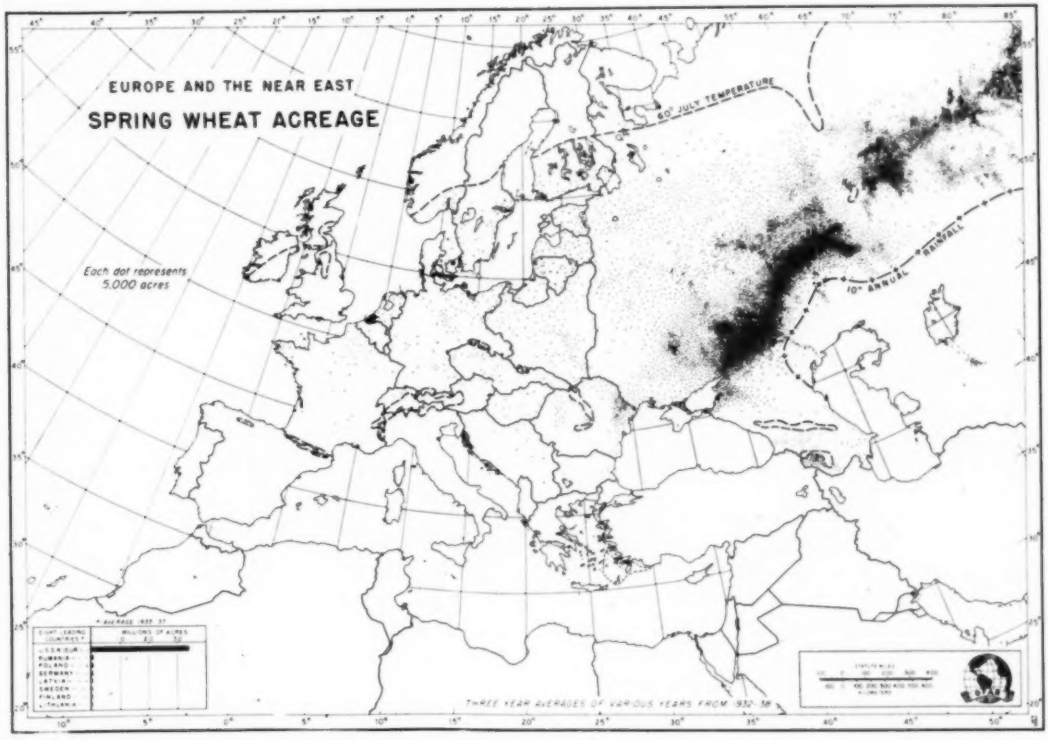
Potatoes have been produced in large quantities in Europe and have been an important food crop especially during war periods. In addition to their being a staple food in Germany, Czechoslovakia, and Poland, the skins have been fed to hogs to a considerable extent.

### *The Livestock Industry*

Most of the European livestock industry is based partly, and in some areas entirely, on locally grown feed. Such local conditions as sufficient rainfall and good soils are important, since climate and soil affect the production of feed more than the production of total crops. This is especially true of seasonal rainfall. Part of the livestock production in some European countries, however, is based almost entirely on imported feed, but since it is used to supplement the home-grown product it rarely changes the pattern of animal husbandry.

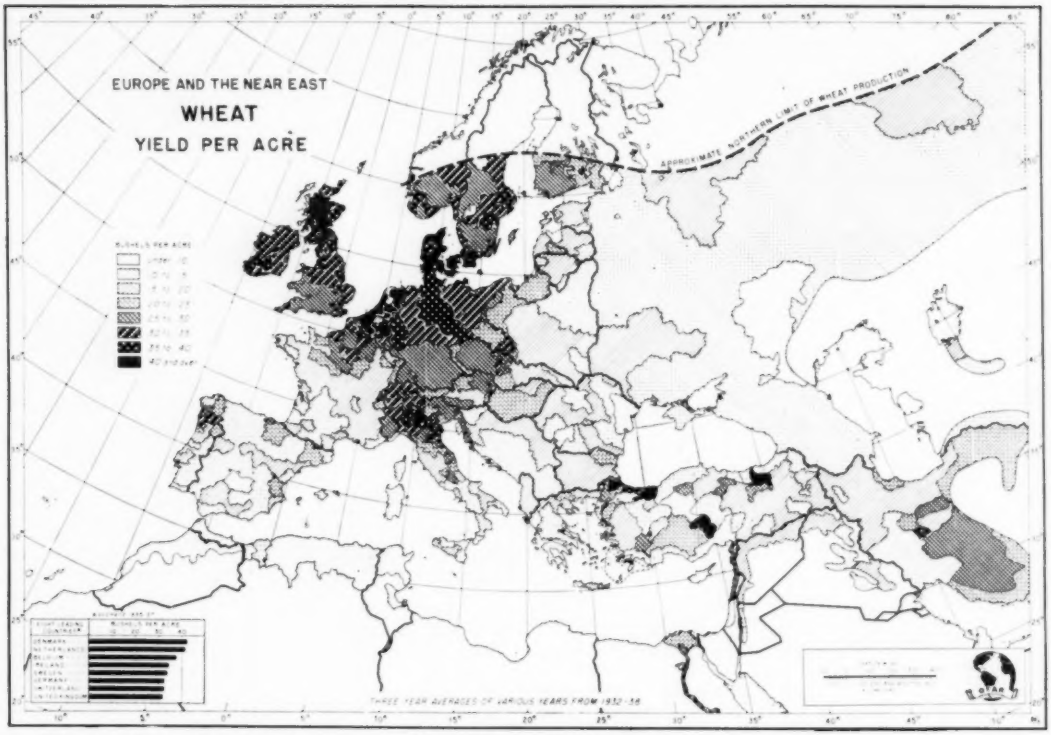
In countries with a high standard of living and with suitable climate, the land is used primarily to grow feed for livestock. In countries with a low standard of living, animal husbandry is subordinated to the production of crops, even though the land is better suited to the production of livestock feed.

The density of livestock per acre, as well as the output of livestock products, varies greatly throughout Europe, the Near East, and North Africa, in extreme instances more than a hundredfold.


EUROPE AND THE NEAR EAST
SPRING WHEAT ACREAGE
Each dot represents 5,000 acres
60° JULY TEMPERATURE
10" ANNUAL RAINFALL
THREE YEAR AVERAGES OF VARIOUS YEARS FROM 1932-38

**Europe and the Near East averaged nearly 38 million acres of spring wheat for the 3-year period, 1935–37. The USSR had about 90 percent of the acreage in this area. On the grasslands of the Ukraine and Caucasus spring wheat is the dominant crop.**

**West of the USSR, spring wheat is grown sparingly and only under exceptional conditions, such as for replacing fall-sown wheat lost by winterkill or a dry or excessively wet fall..**




**Wheat yields vary from less than 5 to more than 50 bushels per acre in the area shown on this map.**

**The Low Countries, Denmark, and the United Kingdom are centers of the highest yields per acre. Here the heaviest applications of commercial fertilizer are used. Yields exceed 30 bushels per acre and, in some large areas, even 40 bushels. Outside this territory, only the rich Po Valley and several areas in Turkey and small acreages in Scotland show such high yields.**

**Yields of 5 bushels per acre, or less, are obtained on the outskirts of the Sahara Desert and in areas of the Near East with a similar climate. In Europe proper, the lowest yields—slightly less than 10 bushels per acre—are on small areas in Portugal, Spain. Italy, Greece, Rumania, Turkey, and a large area north of the Caspian Sea in the USSR.**

The greatest output of animal products per acre comes from the Netherlands, where the large quantity of home-grown feed is supplemented by imported feed.

In the countries of northwestern Europe the combination of dairying and hog production ensures the best possible utilization of the land, and, supplemented by eggs, it forms the predominant pattern of agriculture in the territory—Denmark, the Netherlands, Belgium, northern France, southern Great Britain, Sweden, and northwestern Germany. Except in Denmark and the Netherlands, the trend in this area is toward hog production and away from dairying. Dairying also tends to dominate in northern Norway, Sweden, Finland, the Baltic states, and northern Russia, because natural meadows and pastures are relatively abundant.

Where the arable land is scarce, it is used primarily to grow food rather than to produce feed for hogs and poultry. For example, most European corn is used as food. It does not provide a base for a great livestock industry as in the Corn Belt of the United States. What little corn can be spared for livestock is used for hogs and poultry. Few hogs are located in the Corn Belt of Europe. They are heavily concentrated in the dairy and potato areas, where dairy byproducts and potato skins are used for feeding.

The European pattern of livestock production is greatly affected by the peculiar feed situation of the Mediterranean. Here a poor grade of feed is relatively abundant. It consists of grass, which is only good enough for sheep, and small shrubs in the mountains and hills, which can only be used for goats. The small number of cattle in the areas with a Medi-

terranean climate reflects this shortage of good feed.

The importance of animal industry in relation to total agricultural production, greatest in northwestern Europe, declines toward the east and southeast, where, because of low rainfall and no irrigation, only a few goats are kept by nomadic tribes.

Dot maps in the Geography show the distribution of cattle, cows, swine, sheep, goats, horses and mules, and asses, reflecting the livestock pattern of Europe and the Near East.

### *Europe's Position in International Agricultural Trade*

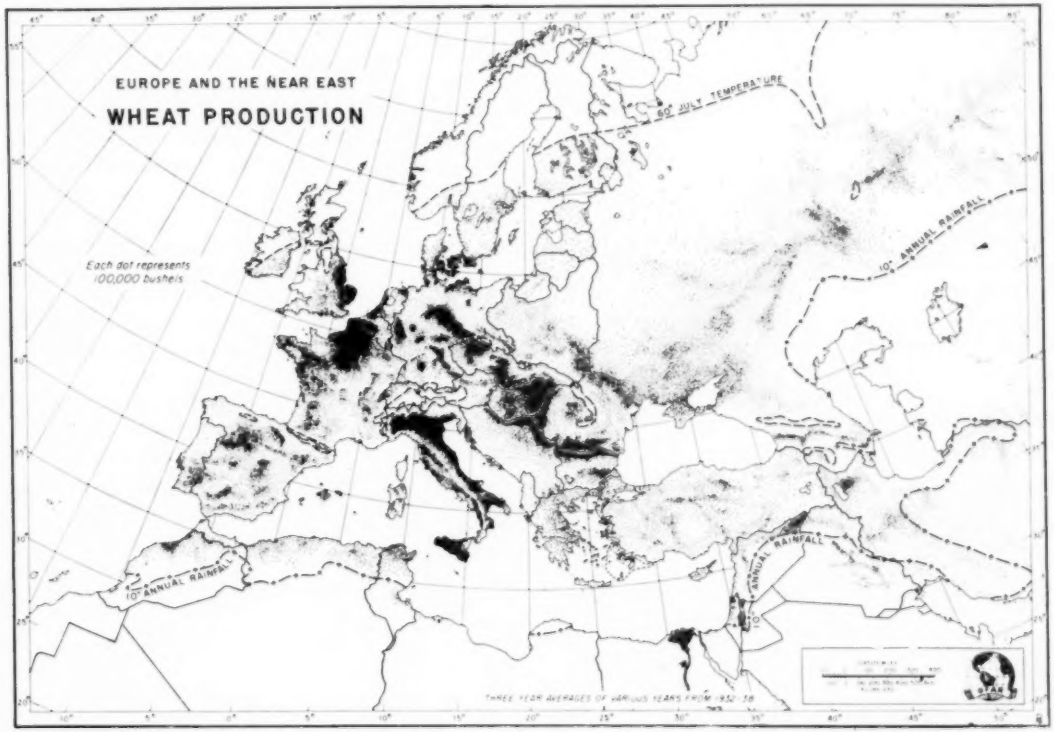
European countries differ greatly with respect to international agricultural trade. The eastern countries have traditionally been heavy net exporters of agricultural products in spite of the relatively large population in some of them. The quantity of food exported from this area is partly attributed to a maintenance of a low consumption level.

Central and western European countries, with such few exceptions as Denmark and Ireland, export more agricultural products than they import.

Before the war, European importing countries bought about 70 percent of the total wheat moving in international trade. The United States, Canada, Argentina, Australia, and the eastern European export countries (including Soviet Russia) were the principal suppliers.

Europe's import needs are at present far greater than before World War II. Full agricultural production has been retarded by the destructiveness of the war, the occupation of various areas by foreign powers, and the scarcity of farm machinery, fertilizer, and other materials.

These conditions, plus the controlling influence of such physical factors as climate, vegetation, and soils, all play a part in the present agricultural pattern of Europe.




**Five areas on the map stand out as the most important for wheat production. The first is the Danube Valley, where the soil is rich and the rainfall moderate. Only drainage was needed to make the Po Valley outstanding in wheat production.**

**Natural soil richness, in conjunction with very intensive cultivation brings about the dense wheat-production area of central Germany. Modern cultural practices, plus high-tariff protection, are responsible for a similar area in northwestern France. Egypt, with its proverbial richness of soil, is the fifth area.**

# FAO Conference—A Report of Progress

***58 Nations Hold Fourth Annual Meeting . . . Spotlight Food Distribution Problems . . . Ask More and Better Information for World's Farmers.***

*by* **KENNETH OLSON**

"One of the ways to restore stability to the world is to produce plenty of food and see that it is distributed fairly."

That was the basic message brought by Harry S. Truman, President of the United States, to the representatives of 58 nations, meeting in Washington, D. C., at the fourth annual conference of the Food and Agriculture Organization of the United Nations. It epitomized America's estimate of the challenge confronting the world's farmers, food distributors, and governments.

That the delegates were of similar opinion—whether from Asia, Africa, Europe, or the Americas—was indicated by the accomplishments of the 2-week conference. The problems attacked and the plans made during the last 2 weeks of November 1948 marked another milestone in the world's advance on the long road toward freedom from hunger.

In brief, these were some important accomplishments:

The Conference took steps to bring about the early renegotiation of an International Wheat Agreement and appointed a committee to study commodity problems relating to production, trade, distribution, and international agreements.

The Conference established a 1949 program calculated to help increase needed food production, particularly in the underdeveloped regions of the world.

The Conference carried out important administrative work, including: Admitted Saudi Arabia to membership, bringing the number of FAO members to 58; set about determining how FAO can be representatively financed in view of the general shortage of exchange; and moved a step closer toward designating a permanent site for FAO.

### *Wheat Agreement Reopened*

Of special interest to farmers of the United States was the Conference's show of determination to keep open the world's avenues of trade in foodstuffs, including wheat. There was general approval when President Truman, in addressing the Conference on November 24, formally reopened the question of an International Wheat Agreement with these words:

"A few months ago, I urged the Congress of the United States to ratify the International Wheat Agreement which would have stabilized the price and volume of wheat in world trade for five years. Many of the nations represented here today participated in that Agreement, and many of your delegates are familiar with its provisions. I regret that this Agreement was not ratified, but I pledge that if another one can be negotiated, I will send it to the new Congress, which convenes in January, for approval.

"However, I look to the general pattern of the Wheat Agreement as one which might be followed for other commodities. Stability is one of the foundations of

peace. National emotions too often rise and fall with changes in commodity prices. We are counting on the Food and Agriculture Organization to remove some of the instability from farm production and farm prices around the world, and thus to remove some of the causes of international friction."

As a result of the interest shown not only by the United States but also by other FAO wheat producing and consuming nations, members of an Interim Committee—established by interested countries last summer—met in special session under the chairmanship of Charles F. Wilson, of Canada, and laid plans for a meeting to be held in Washington, D. C., on January 25, to begin wheat agreement renegotiations.

### *Multilateral versus Bilateral*

That critical trade problems exist today was the consensus of the Conference but it was noted that the answers to the problems, as offered by the various delegates, reflected differences in viewpoints. The United States expressed alarm at the postwar growth in bilateral trade agreements. The United Kingdom, on the other hand, defended such agreements on the grounds that they give confidence to producers when multilateral agreements are not in effect.

Albert J. Loveland, Under Secretary of Agriculture, in speaking for the United States, made this criticism of bilateral agreements:

"I frankly note with some apprehension the fact that a large portion of the wheat moving in world trade today is already tied up through bilateral agreements or other government-controlled bulk contract sales. And, unfortunately, that practice is widespread with respect to other commodities as well. That is not the direction in which my government wants to move. We feel that it is contrary to the best interests of the world, that it is contrary to the goals set forth in the Atlantic Charter, that it is contrary to the spirit of the recommendations of FAO's preparatory commission, the General Agreement on Tariffs and Trade, and the proposed ITO Charter. We feel that the multilateral approach to these commodity problems is infinitely better. . . ."

Thomas Williams, M. P., Minister of Agriculture and Fisheries and United Kingdom delegate, pointed out that his nation is a participant in negotiations for the International Wheat Agreement and is a member of the International Sugar Council. At the same time, however, he defended the various bilateral agreements to which his country is a party.

"Stabilization of agricultural prices with the attendant relief to the agricultural community from the social and economic hardships of violent fluctuations, has rightly become an objective of agricultural policy in all advanced countries," the British Minister asserted. "For instance, in my own country our farmers now know what the prices of their crops are going to be two years ahead and their floor price for their livestock four years ahead, and in the international sphere we have made long term contracts covering periods from three to even seven years with a number of countries to give them confidence to expand their production."

### *Extension Need Cited*

As in preceding FAO conferences, delegates unanimously proclaimed the world-wide need for better farming practices. It was a frequent observation that today's volume of scientific agricultural knowledge, in the hands of specialists, far surpasses the world's means of disseminating it to farmers. General adoption of extension methods of bringing information to farmers was recognized as a necessity if food production is to keep up with increasing population.

A report, *The State of Food and Agriculture, 1948*, submitted to the Conference by N. E. Dodd, Director-General of FAO, indicated the vast disparities that exist between food contributions of various parts of the world.

The report recommended world-wide steps toward soil conservation, improvement of crops and livestock, wider use of fertilizers, use of more farm machinery, use of available water supplies, improvement in farming techniques, reduction of waste, and, where feasible, cultivation of new lands.

In recommending increased extension activity, the report pointed out that "some countries have made effective beginnings without costly and elaborate equipment by utilizing the most progressive farmers in the villages as channels for spreading the new ideas and methods."

President Truman, in addressing the Conference, pledged the assistance of the United States in developing extension methods in other countries.

"I can promise you" he said, "that this country will continue to send its experts wherever FAO believes they are needed."

### *1949 Action Program*

A large portion of the 1949 program of work, as laid down by the Conference, will be directed at in-

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**Mr. Olson is Assistant Head, Division of Foreign Information, OFAR.**



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**These delegates from India to the FAO Conference, and 128 other delegates from 33 countries, were guests of 60 farm families in nearby Maryland and Virginia on Thanksgiving Day.**

creasing agricultural production—particularly in the world's underdeveloped areas.

The rinderpest control campaign, especially in Africa and Asia, will be continued and expanded. Improvements will be sought in methods of reporting and controlling other livestock diseases, such as foot and mouth disease.

An International Locust-Control Conference was scheduled for 1949.

An FAO Rice Commission was established, to devote full time to rice production problems of the Far East.

The Conference asked that increased emphasis be given the advancement of farm cooperatives.

Plans were initiated for an International Forestry Conference, to be held in the Far East in 1950.

Nutritional leaders of the Near East will be invited to attend a study course in Cairo early in 1949.

Member nations will be urged to draw up "balance sheets," showing the relationship between food needs and apparent food availability, and to establish agricultural production goals programs similar to those used in the United States.

An effort will be made to establish regional fish councils, with the objective of augmenting deficient diets through increased use of fish.

FAO will continue to develop plans for the 1950 World Census of Agriculture, in which 65 countries are expected to participate. The Census will provide the most complete statistical picture of the world's agriculture that has ever been assembled, and is expected to be of value in future planning.

### *Administrative Actions*

With the admission to membership of Saudi Arabia, the number of FAO member nations was brought to 58. Action was not completed on a request for membership of Israel. President Truman expressed the hope of the United States that eventually all nations will become members of FAO.

"I should like to see that large agricultural country, Argentina, become a member," said the President. "I wish that the Soviet Union would also join. I think that if we could discuss with the Russians our mutual interest in agriculture, it would not be so difficult to discuss our differences in some other fields."

The Conference gave serious study to the selection of a permanent site for FAO's headquarters, with the choice narrowed down to the two United States cities of Washington and New York and the two European cities of Copenhagen and Rome. Final action was deferred, however, with the expectation that a decision may be reached in 1949.

United States Secretary of Agriculture Charles F. Brannan was chairman of the Conference. He was assisted by three vice chairmen: First Vice Chairman V. K. Wellington Koo, Chinese Ambassador to the United States; Second Vice Chairman José Manuel Casanova, of Cuba; and Third Vice Chairman James M. Dillon, Minister for Agriculture of Ireland.

Conference headquarters was the Shoreham Hotel in Washington, D. C. Approximately 350 delegates and official observers attended.

The next annual Conference was tentatively scheduled for November 19, 1949, in Havana, Cuba.

**FAO delegates from foreign lands showed interest in United States livestock developments at the Agricultural Research Center, Beltsville, Md.**

# Western Europe's Blueprint For Agriculture

***Encouraged by a good harvest and by rising output of industry, Europeans face the challenge of the future with increased confidence.***

*by* **NATHAN KOENIG**

Another good harvest such as the one just concluded is needed by the countries of Western Europe to consolidate the economic recovery gains they are making this year. In addition, they need further substantial increases in exports, especially to dollar areas, to enable them to pay for essential imports of the additional food, raw materials, and finished goods required in the lifeline of their agricultural and industrial production.

The people of Europe have really rolled up their sleeves, determined to work their way out of economic stagnation and want. Country and city people are now pulling together with renewed confidence in the ability and willingness of each to help meet the needs of the other. The result is an increased flow of food from the farms through regular trade channels to the cities and a greater movement of manufactured goods from these industrial centers to the rural areas. This teamwork has brought new hope and courage to the millions who had been caught in the aftermath of war.

I saw all of this on the farms, in the factories and mines, and in the faces of the people living in the Western European countries that I recently visited. This was a healthy change from the economic paralysis and human despair that I found in these and other European countries on my preceding visits during 1946 and 1947. For this almost miraculous improvement, the people of Western Europe give their thanks to a good harvest this year and to the timely help being provided by the European Recovery Program.

All through the growing season, farmers and city people alike had anxiously watched the development of crops at home and abroad. City dwellers were especially concerned. The 1947 drought in Europe had sharply reduced food production, and they knew that unless the 1948 harvest was good, their already small allowances of food would be still more meager. As the promising outturn of the 1948 crop became apparent, various European governments began a gradual easing of ration restrictions. They increased the amount of bread distributed and improved its quality. Some countries even found themselves in position to eliminate direct ration controls on several foods in view of the improved world food outlook.

In practically all the countries, I found definite plans under way to make more grain available for livestock feeding. This represented a major shift in policy, for during and since the end of the war the emphasis had been on the use of grain for direct human consumption rather than for animal feeding.

While the countries of Western Europe harvested a big crop of potatoes and a good crop of bread grains—the two staples of their diet—the fact remains that they still will not have enough grain out of their own production to meet their needs for the year. Most of these countries normally are food-deficit areas and must depend on imports to fill the gap between what they have and what they need.

With the biggest supply of grain the world has had since the end of the war, the people of Western Europe see enough bread available until the next harvest. Thus, they feel that their drive toward economic recovery is underwritten for the year ahead. But their fear of hunger in the future has not been dispelled, for the memory of what happened to their crops during the drought of 1947 is still fresh in their minds. They know that to the extent their own crops may be reduced, the deepened food deficit will have to be made up through imports—and their governments do not have the foreign exchange, especially dollars, with which to buy all that is needed, even in present circumstances.

But there is no complacency among these people. Everywhere I went I found farmers busy on next year's plans. These farmers felt the improved world grain situation and the prospect of more fertilizer, insecticides, farm machinery, and such favored some changes in the pattern of their farm operations.

In many of these countries, farmers will not have their own way entirely. Their governments are also interested in steering the course of farm production

**Mr. Koenig is Executive Assistant to the Secretary of Agriculture.**

**Europe has a plentiful supply of potatoes this year. The potato—along with bread—is basic in the European diet.**

for next year and the years ahead. They want to become more self-sufficient, so as to reduce the need for imports of food and other farm commodities and thus save scarce foreign exchange for other productive needs that they themselves cannot fill.

### *England*

Most striking is the plan launched by the British Government to expand agricultural production, with emphasis on dollar-saving products. While in England, I found that vigorous measures were being taken to push this recently announced program. This plan, translated into output available for sale and adjusted for requirements of imported feedstuffs, would raise food and feed production 50 percent above prewar by 1951–52, or 15 percent above the wartime peak of 1943–44 and 20 percent above the 1946–47 output. In terms of value, this program seeks to raise agricultural production by more than 400 million dollars. According to the plan, half of this expansion is to be achieved through increased efficiency and the other half through additions to agricultural resources.

As an incentive to farmers, the British Government has promised increased returns through higher prices, subsidies, grants, and acreage payments. The subsidies and related payments will serve as leverage in obtaining the most desired shifts in production as well as increases in output. In addition, the Government has assured farmers that it will help them get the necessary labor and will make available the required iron, steel, timber, and other materials.

Aside from these incentives and aids, the British Government has in operation machinery that not only controls farmers' marketings but could compel any farmer to follow a specified pattern of production. Severe penalties may be imposed for noncompliance with directives issued by County Agricultural Executive Committees, the administrative bodies set up at the outbreak of the war as a vehicle through which the Government's agricultural-production plans were executed. This authority is embodied in the Agricultural Act of 1947, which provides for price fixing, payment of subsidies, and the administrative mechanism. This act is a modification of the legal authority in existence since the war began.

The monotony of the British diet affords ample evidence of the degree to which imports are being controlled. These import restrictions not only save scarce foreign exchange but also make it obvious to the people of Britain that if they are to have more to eat, more will have to be produced at home.

The British are making a genuine effort to increase industrial production, so as to expand exports of manufactured goods and in this way obtain more foreign exchange with which to pay for necessary imports. But the Government apparently feels that the buying power so derived will still be inadequate. This grim point of view was expressed officially by the British Government when the stepped-up agricultural-production program was announced:

"Even if export targets are achieved in full, the nation cannot, except through a large expansion in agricultural production, simultaneously provide itself both with foodstuffs to produce an adequate diet, and industrial raw materials to sustain the level of employment. Without the utmost efforts of the agricultural industry, either undernourishment or widespread unemployment may have to be faced, or some combination of the two."

This desire to become self-sufficient exists in varying degrees in other countries of Europe. Some of the motivating reasons are political and some are economic. On the economic side, the paramount factor is the shortage of hard currency, primarily dollars, with which to pay for the products they would like to import. Thus, the dollar-short countries find themselves forced by the immediate pressure of their circumstances to emphasize dollar-saving when perhaps more of their skills and energies should be devoted to dollar-earning. However, a distinction must be drawn between plans and policies designed to achieve greater self-sufficiency and those efforts aimed at encouraging production through increased efficiency and more effective use of resources. In

many of the European countries, there is a mixture of both.

### *France*

In France, I found that agriculture was regarded as being in a strategic position from the standpoint of the political and economic difficulties in which that country finds itself. The high cost of food, which alone takes around three-quarters of the average French worker's earnings, has been an important factor in the unrest that has prevailed. The Government wants more food to come off the farms for the people in the cities and has offered farmers various inducements to increase production and marketings. Imports have had to be held down because of a shortage of the exchange needed for payment.

The French would like to see their agriculture further developed and modernized so as to increase output not only for greater home consumption but also for an expanded export trade. The Government plans to increase production of farm equipment and fertilizers, expand rural electrification, and improve facilities for processing and handling farm products.

Bread is basic in the diet of the French people. Ordinarily the country can produce enough wheat to meet domestic needs, but there is a strong urge for greater security in their wheat supply. The feeling is that France should produce more wheat for bread, along with other grains needed for feeding livestock and for increasing the production of animal products.

### *Switzerland*

In Switzerland, I found that the wartime emphasis on home food production is to be continued by keeping the grassland, brought into cultivation during the war, in crops. The Swiss believe that this will not hamper further expansion of their dairy industry, in view of the improved techniques for making silage and for artificial hay drying developed during the war and now generally in use.

The Swiss are eager to expand their dairy industry, especially cheese production, which utilized one-fifth of the milk. A major hope is that the prewar volume of cheese exports may be exceeded. They feel that this depends largely on the willingness of the United States to accept more cheese from them.

The number of cows on Swiss farms—and milk production—was reduced during the war, because of shortages of imported feed and the urgent necessity to increase the amount of arable land used for food crops. Although the acreage under cultivation during the war was doubled, milk production was not reduced proportionately. Since the end of the war, the Swiss have been restoring livestock numbers.

The Swiss dairy industry is rather tightly regulated by the Government, working with producer and trade organizations. Compulsory delivery of milk and dairy products, imposed on producers and processors as a wartime measure, is being continued for the present. Milk production is still subsidized by the Government. Milk and dairy products are sold at fixed prices. Price fixing by organizations under Government guidance and sanction is expected to continue for some time to come as an integral part of agricultural policy. Practically all milk producers, all cheese makers, and all cheese exporters are union members. Other segments are similarly organized. Once the price is fixed for a group, there is no competition except in the quality of the product. That quality must meet minimum Government standards.

The average farm in Switzerland is small and requires much hand labor. I noticed, however, that farmers were beginning to turn to mechanical equipment in view of the farm-labor shortage.

### *Sweden*

In Sweden, I learned that agriculture is scheduled to play a more prominent part in the economy. During the early 1930's, Sweden shifted emphasis from agriculture to industry. As a result the farm population declined. At present, only about 25 percent of the people live on farms, three-fourths of which have less than 25 acres of arable land. People living on the

**A good harvest and stepped-up industrial activity brought more food into the city markets of Europe.**

smaller farms derive their income from forests and such other part-time work as making small parts for industry.

Sweden's present policy of encouraging increased farm production is pointed not only to reducing the need for food and feed imports but also to providing more livestock products for export. Emphasis is being placed on growing more grain for food and feed. Normally, Sweden can meet its bread-grain requirements with some wheat imports to improve bread quality. The country has also had to import some coarse grains and protein meal and cake for livestock.

For the present at least, the program for expanding agricultural production is being retarded somewhat by a labor shortage. Farmers find themselves competing with industry for workers. This, plus good prices for farm commodities, has increased the demand for farm machinery, which is in short supply.

### *Denmark*

Sweden's neighbor, Denmark, has a little over a fourth of its 4 million people engaged in agricultural and forestry work. With 200,000 farms in Denmark, the typical farm has around 60 acres but the average consists of around 35 acres. Agriculture is the backbone of the Danish economy and is vital to the country's production for export. The Danes are striving hard to rebuild their export trade in agricultural products and are making good progress.

Before the war, Denmark exported a wide range of farm commodities, including field seeds, seed potatoes, sugar, fruits, vegetables, and, most important, livestock products. Production and marketing techniques are being improved, and the Danes hope to exceed the prewar export volume soon. Before the war, Denmark had 25 percent of the world trade in butter, 33 percent in bacon, and 25 percent in eggs. Exports of the more important farm products are under Government control.

The Government does not exercise direct control over agricultural production. I gathered from discussions, however, that Danish farmers may be expected to continue increasing their production of field crops so as to have more available for conversion into livestock and livestock products. The extent to which this will be done in the long run, however, hinges on the relationship between costs and export prices received for the finished products.

Right now, a great deal of emphasis is being placed on increasing Danish poultry and hog production so as to provide more eggs and bacon for export. Increasing milk production through improved feeding is also being stressed from an immediate standpoint, in view of the time element involved in raising dairy animals. Some subsidies are being used to increase returns to producers so as to encourage higher production, especially of milk, butter, and bacon.

Danish farmers are more interested in mechanization than ever before, primarily because of labor shortages and high wages. Too, these farmers, like farmers in other countries, have the money with which to buy farm equipment. Small farmers have established several cooperatives for purchasing and using the more expensive farm equipment. Cooperative organizations are an integral part of the Danish agricultural economy. They cover a wide field, with most farmers belonging to several different cooperatives engaged in marketing and purchasing.

### *Germany*

What I saw in the different countries of Europe, however, did not surprise me as much as what I observed in Germany. Here I saw various signs of healthy economic activity that were missing in my visits of the two preceding years. It was like the difference between day and night.

In the first place, there was a visible improvement in the health of the people. Their faces were more pleasant. Their stride had quickened. Their clothing had greatly improved. Business and industry, too, showed more activity. The pace in factories and mines had quickened. The flow of goods and raw materials had increased from a mere trickle and was rising to a meaningful volume. Stores, which had been empty or meagerly stocked with crude and poorly made articles, now had many of the items needed for household and personal use. Also, a start was being made in private repair and construction of buildings, but it was only a start.

Another significant development I noted was that farm products were moving more readily through legal channels of trade. Absent from the scene of a year ago were the masses of people from towns and cities scouring through the countryside in search for food. There was good reason for this change. Farmers were bringing their produce to food markets, this year's harvest was good, and home food supplies were being supplemented by imports in greater volume and variety than was possible since the end of the war.

Much of this sudden transformation in the German economy was attributed to the currency-reform measure put into effect in June. It invalidated the old currency and in general provided a conversion ratio

of 10 to 1 for the exchange of old money for the new Deutsche Mark. The main objective was to withdraw excess money from circulation and thus eliminate the black market and create an incentive to produce.

The currency-reform measure gave the German people a medium of exchange in which they could have confidence. The problem, however, is to maintain that confidence in the new currency. The ability of the German economy to provide a continuous flow of goods into domestic trade channels is essential to the soundness of the new currency. Otherwise, with a growing scarcity of goods, prices will increase and the currency will depreciate in value.

I found, too, that the plans of German farmers were being influenced by the more hopeful economic developments that were apparent to them. They are eager to restore a balance to their pattern of agricultural production by expanding their livestock numbers. During and since the end of the war, the emphasis in German agriculture has been to increase home-grown food. This was done by reducing the amount of land used for raising feed and forage in favor of bread grains, potatoes, beans, and sugar beets.

With this year's improvement in Germany's food supply and in world grain production, German farmers see their opportunity for a start toward restoring livestock production, which has always been important in their agriculture. Cattle have been especially important because they provide not only milk and meat but also draft power and manure, which the German farmer regards as essential for maintaining the fertility of his land. Under a 1948–49 program for the Bizonal area, a first effort will be made to improve and balance herds, increase the number of milk cows, and improve production per cow. Also, a plan has been launched to bring about some increase in the supply of pork and lard for distribution through legal trade channels. Under this plan, a million hogs are to be fattened under contracts with farmers. In view of the larger grain supply, poultrymen hope to begin rebuilding their flocks. Poultry production was cut very sharply during the war, and until this year feed was permitted primarily for foundation breeding stock.

If livestock production is to be expanded, more feed will be required, some of which will have to be imported. Thus, much depends on whether there is money to pay for both food and feed imports. The question of food alone will be paramount for some time to come—at least until German industry produces and exports enough to pay for imports. Even

**The 1948 outturn of grain in Europe was the largest since the end of the war.**

in the best of times, Germany was not self-sufficient in its food supply. Today, the problem is aggravated by the country's having to support more people in a smaller territory. For example, the area occupied by the United States and Great Britain now has 7 million more people than in 1939. With the number in the French Zone, the population under control of the three powers totals around 50 million.

In considering what is taking place in the normally food-deficit countries of Europe, it is important to bear in mind that former surplus-food-producing areas are interested not only in achieving prewar levels of production but in exceeding them. Already, some of the normally surplus-food-producing areas of Western Europe and of Eastern Europe are beginning to become market conscious. All of these agricultural countries are concerned about the future of market outlets. If the normally food-deficit countries persist in their efforts to become self-sufficient in those agricultural commodities that logically they should import, the basis required for broad international trade in both farm and industrial products will have been dealt a serious blow. Thus, it would seem that there is a real need for more thorough consideration of the long-range implications of the various production plans. This would go a long way toward providing guidance necessary to avoid disastrous effects that may well result from conflicting courses of action.

After all is said and done, no nation can expect to achieve and maintain a high volume of commercial exports without importing goods in sufficient quantities to permit payment for what is sold. Such a flow of goods among nations promotes their self-support. Otherwise, they are driven to belt-tightening and self-sufficiency.

# Compost Development in India

***Plentiful fertilizer can go far in providing good crops that combat hunger. India, therefore, is setting out on an ambitious program of expanding its fertilizer supply—by encouraging half a million cities and villages to turn their wastes into soil-building compost.***

*by* **DR. C. N. ACHARYA**

India has a shortage of food and a shortage of fertilizer. To some extent, the former is due to the latter. The Government, therefore, has embarked upon a nation-wide project to help give Indian soils the additional fertility needed to adequately feed Indian people. The Government hopes to do this by utilizing the country's waste materials for compost.

Compost probably was mankind's first fertilizer. It is a so-called "natural" fertilizer made up of decomposed wastes. India has little chemical fertilizer but has an abundance of urban and rural wastes, which can be turned into useful fertilizer.

Of these fertilizer resources, cattle wastes are the most important. It is hoped that by properly composting these wastes twice as much manure will become available, adding an extra 2 million tons of nitrogen to the soil. The soil might be expected, then, to produce an additional 10 million tons of foodstuffs—more than enough to meet the existing deficiency. Such a compost-development program would not require machinery or capital—only efficient organization and education of villagers.

After the Bengal famine of 1942, when millions of Indians died of starvation, the Government of India began the program for compost development under the direction of the Indian Council of Agricultural Research. The Council trained staffs of Provincial departments of agriculture and municipalities in the Bangalore process of composting, which I developed at the Indian Institute of Science at Bangalore. Later, the program became part of the Government's "Grow More Food Campaign." Provincial governments were invited to submit detailed plans for producing compost from urban and rural wastes. From these plans, the Urban and Village Compost Schemes were developed.

The serious food crises through which the country has been passing during the past 4 or 5 years and the difficulty of importing food grains have given great momentum to this program. During the prewar years, India imported 2 million to 3 million tons of food grains a year, principally from Burma. But these imports stopped during the war and have not yet been resumed. The fact that India now needs about 5 million additional tons of food a year indicates the significance of this program.

Table 1 shows the progress that the compost-development program is making.

**Waste materials, placed in pits and covered with dry earth, become usable fertilizer in 4 to 6 months.**

TABLE 1.—*Progress of compost-production program in India*

| Year | Urban Compost Scheme | | Village Compost Scheme | |
|---|---|---|---|---|
| | Compost centers | Total production | Compost centers | Total production |
| | *Number* | *Tons* | *Number* | *Tons* |
| 1944-45 | 260 | 182,610 | 1,826 | 210,000 |
| 1945-46 | 411 | 282,670 | 4,247 | 520,000 |
| 1946-47 | 578 | 409,860 | 7,569 | 829,000 |
| 1947-48 [1] | 566 | 481,636 | 20,465 | 1,252,584 |

[1] The data for 1947-48 refer to the Indian Union area only.

To produce compost according to the Bangalore process, trenches 20 to 25 feet long, 5 to 8 feet wide, and 3 feet deep are filled to a height of 1 to 1.5 feet above ground level with alternate layers of dry town refuse 9 inches thick (called *katchra* in India) and night soil 1 inch to 2 inches thick. The top is covered with a 1-foot layer of refuse and a 2-inch layer of dry earth.

This combination of refuse and night soil provides a proper balance of carbon to nitrogen, which promotes rapid decomposition, as evidenced by about 160° to 170° F. temperatures produced within 24 to 48 hours. These high temperatures last a week or 10 days and destroy pathogenic organisms, fly larvae, and weed seeds. Fungus develops in the first 2 weeks and bacteria and other micro-organisms, later. At the end of 4 to 6 months, depending on seasonal factors, the refuse and night soil have fully decomposed and broken down into an inocuous, odorless product, resembling farmyard manure in appearance and chemical composition. It contains about 40 percent moisture, 0.5 percent nitrogen, and 0.4 to 0.5 percent phosphoric acid (on the wet basis). The manure is then taken out of the trenches and passed through ¾-inch expanded metal sieves to remove glass, tin, porcelain, and such. It is now ready for sale to farmers.

The Urban Compost Scheme operates principally through municipalities. About 600 are now cooperating and preparing 500,000 tons of compost a year. Under present plans the system will be extended to about 4,000 towns, in which it is hoped that 6 million tons of compost will be produced. Municipalities maintain compost depots and produce compost at a cost of about $1 a ton.

The Village Compost Scheme is larger and more complicated than the urban. Many of the villages have no local organizations, and the Provincial governments have, in general, only a nuclear staff in their agricultural departments, with only about one graduate officer for a group of 500 villages. The existing administrative machinery is slow, and the difficulties of organizing the villages for participation in this program is obvious.

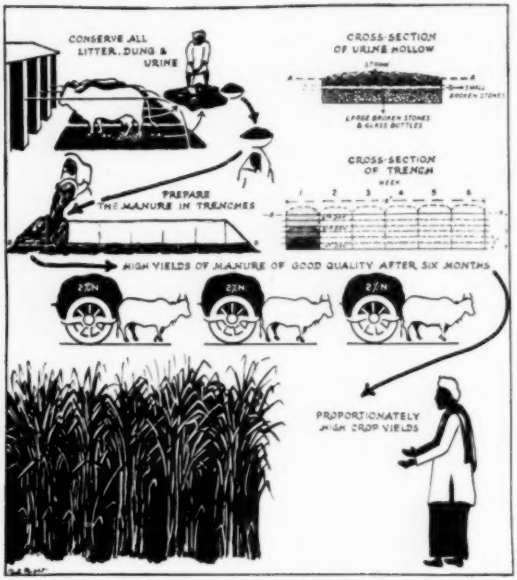
The plan is to organize compost production in about 550,000 villages spread throughout the country and to produce an additional 200 million tons of manure in these villages. So far, about 20,000 are cooperating.

Villagers, through local committees and with the help of village schoolmasters who are being trained in the improved methods, will be encouraged to adopt these methods for preparing manure and to increase the quantity they prepare.

The methods of manure preparation practiced in Indian villages are primitive, and losses of fertilizer constituents are heavy. India has nearly 200 million cattle (cows, bullocks, and buffaloes), which are generally kept in the villages. The dung, urine, and waste litter of these cattle form the most important source of manure for the country. By properly utilizing these waste materials, about 400 million tons of manure a year could be prepared, containing about 2 percent nitrogen on the dry basis. Now, however, less than half that amount is prepared and even that is of poor quality.

There are several reasons for this. The villagers use manure, dried into cakes, as fuel, because they are ignorant of its value as fertilizer and because there is

**An Indian village whose wastes are being turned into composted fertilizer, thereby helping increase food production.**


CONSERVE ALL LITTER, DUNG & URINE
CROSS-SECTION OF URINE HOLLOW
CROSS-SECTION OF TRENCH
PREPARE THE MANURE IN TRENCHES
HIGH YIELDS OF MANURE OF GOOD QUALITY AFTER SIX MONTHS
PROPORTIONATELY HIGH CROP YIELDS

**In teaching villagers to save waste materials and compost them properly, the Indian Government sometimes uses its artists to help tell the story.**

no cheap alternative source of fuel—all the fuel trees around villages were cut long ago and never replanted. Refuse is not spread under the cattle to conserve the urine for manurial purposes. Manure is not stored properly, leading to considerable leaching by rain and losses due to excessive decomposition in the tropical heat. Much of the plant and animal refuse available on farms and around villages is not collected.

To provide cheap fuel so manure will not have to be used, arrangements are being made through the forest departments to supply seeds and seedlings of quick-growing trees to village committees. Tree-planting weeks are fixed, in which all villagers join to provide free labor for planting. The Government provides, through their agricultural and forestry staff, the necessary technical help in carrying out the program. But the available staff cannot handle as much as 5 percent of the villages a year; progress will be slow, unless the Government allots more funds and adopts special measures to expedite the scheme.

In addition to refuse normally available in villages some areas have special types of waste material for compost. For example, large areas of Bengal are overridden with water-hyacinth, which, on account of its rapid growth, is proving a great pest in irrigation channels and canals and in cultivated fields. Some large-scale work, carried out in Bengal during 1946–47, showed that water-hyacinth could be easily collected and converted into compost manure of good quality, at a cost of about 40 cents a ton. Since the manure easily sells at a higher rate, it pays the farmer to get rid of the water-hyacinth by composting it under Government guidance.

There are nearly 4 million acres under sugarcane in India, from which about 20 million tons of trash are available on the farms. Most of this is burned off at present. Large-scale trials carried out in Bombay Province during the past 2 years have shown that it is simple and inexpensive to convert this sugarcane trash into good-quality compost on the farms.

Compost has also been prepared on a large scale in Bombay Province from forest litter. Farmers in adjoining villages are asked to collect the litter, compost it in pits in the forest area, and take it to nearby villages where it is put on the land. The forest department has permitted rotational removal of litter from selected blocks once in 5 years, so as not to interfere with the natural regeneration of the forests.

Large-scale compost development has just made a start in India. So far only about 10 percent of the urban refuse and less than 1 percent of the rural is being used for compost.

Under conditions in India today, the question of organics versus chemicals or organics with chemicals is only of academic interest to the farmers and to the country. They are concerned with getting their own soil-building resources on the land as soon as possible to produce the food needed for the country's growing population.

**Indian villagers use manure, dried into cakes, as fuel.**

**Dr. Acharya is Compost Development Officer, Ministry of Agriculture, Government of India.**

# Puerto Rico's Farm Radio Programs

***The Puerto Rican Extension Service finds in radio a highly successful informational media. A daily farm and home broadcast—* Actualidad Agrícola*—gains the ear not only of local people in farm homes and crossroad stores but also of Caribbean neighbors.***

*by* **JOSEPH D. TONKIN**

The announcer went about his work like any of the professional men to be seen in Fort Wayne, Baton Rouge, or Spokane. He seemed rather indifferent to the transcribed announcement that was going out on the airways from his turntable. As he lifted the needle from the groove, however, he brightened noticeably and waggled a finger vigorously at us through the heavy glass that separated the control room from the studio. At the signal, one of my companions stepped to the microphone.

"Amigos agricultores y señoras dueñas de casa . . ."

*Actualidad Agrícola*, the daily farm and home radio broadcast by the Cooperative Extension Service in Puerto Rico, was on the air.

In the vernacular of the trade, it was a 15-minute package on 14 of the island's 23 stations. It went on the air at 5:45 in the afternoon after the jíbaro had left his work in the cane, coffee, pineapple, and tobacco fields.

I was a little curious about the time of day secured for these broadcasts. Upon inquiry I was told about the thousands of little country crossroads stores dotting the land—each one a social center in a tiny rural community; each one an oasis to which the workers of the field flocked at the close of the day's work—stores that offered not only rice, beans, and dried fish but also a radio. It was here that *Actualidad Agrícola* found them.

Miguel López, Extension Radio Specialist, was reviewing the important farm news of the day. To me, it sounded like the same Spanish I had heard him use when we examined a beautiful fighting cock that had been brought into one of those country stores by a farmer the day before. It was wholesome, down-to-earth Spanish. And surely, it worked.

After Miguel came Nieves Diaz, Extension Radio Editor, newly returned from a year's work in radio at Columbia University, to introduce a feature on soil conservation

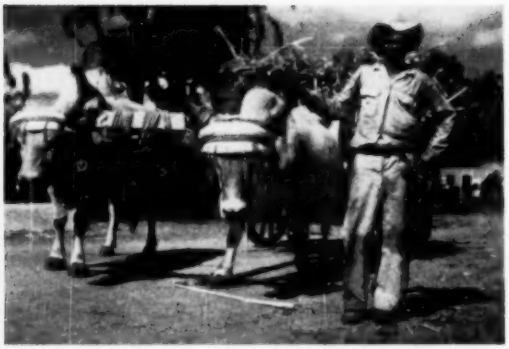
As one who has spent a good bit of his adult life farming with a microphone, I was impressed. *Actualidad Agrícola* was doing something for the farmers and homemakers of Puerto Rico.

Later, I saw mail that had been received from people all over the Caribbean area. Obviously, some of the program's international appeal lay in the thinking, planning, and voicing of the show in Spanish. But deeper consideration made it more and more evident that farmers in neighboring countries were interested because of the common conditions in Puerto Rico and their own land.

If listeners in neighboring states will write to Puerto Rico for farm information they have heard about on the air, a like service would be well received from their own broadcasters. The general format used so successfully in Puerto Rico will apply with variations in all of them.

I went to Puerto Rico primarily to conduct a series of radio schools for extension workers on the island and lay the groundwork for a listeners' survey of *Actualidad Agrícola*. The survey is still in progress. The schools were held at Rio Piedras, Ponce, and Arecibo. Seventy field workers and 20 extension specialists attended.

Radio schools in the Extension Service are about one-fourth instruction, one-fourth practicum, and two-fourths clinic and discussion. Standards are set up by the student group for effective broadcasting in a given area. With these standards comes instruction.



**At the end of a day's work Puerto Rican farmers look forward to hearing their favorite radio programs.**

Afterward, programs are prepared, recorded, and played back for clinical examination.

In Puerto Rico the setting of standards and instruction was carried on in English, while the programs were prepared, voiced, and discussed in Spanish.

If any one point stood out in the discussions, it was the opinion that farm and home broadcasters were talking to people, not lecturing them. Second only to an informal, down-to-earth approach, the schools stressed the great value of associating the main point of the broadcast with the names of the farm and home folks who were carrying it out. In other words, a farm and home story usually comes from the land and, to make it live, it must be associated with people by introducing plenty of names into each program.

Some 20 points such as these formed the foundation for the school work. At the same time, the group was taught to coordinate radio with other media—the distribution of technical bulletins, the building of greater attendance at demonstrations and meetings, the introduction of new facts and ideas.

In this way, a large radio-conscious force was built up within the agricultural information framework of Puerto Rico. Five of the county offices (barrios) are on the air now with local programs. Others are feeding radio material back to the central office or taking part in the network show.

To aid them, the extension office at Rio Piedras has developed other helps in addition to radio schools. A Radio Handbook for Extension Workers has been prepared in Spanish. A monthly listing of subjects to be carried on *Actualidad Agrícola* is available, along with mimeographed scripts of each day's presentation.

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**Mr. Tonkin is Extension Radio Specialist, Office of Information.**

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Of a general nature is "De Radio," a release that resembles a combination of the RFD Letter and Farm News Flashes put out by the United States Department of Agriculture's Radio Service in Washington.

Of great significance is the recent purchase and use of magnetic tape recorders by stations in Puerto Rico and by the central extension office itself. This makes possible on-the-spot recordings with farmers and farm homemakers and insures more down-to-earth quality for network as well as local programs. Tape recording is excellently adapted for use in this part of the world enabling specialists to speak directly from field, greenhouse, or laboratory. An invertor is now available that makes power for these recorders available from any automobile. The iron-oxide-treated paper tape is low in price and is therefore ideal for building up a library of recordings.

Of general broadcasting, it should be noted that Puerto Rican radio stations do not depend on New York or Hollywood for the bulk of their programing. This general self-reliance is a good omen for future farm and home programs.

It is doubtful that all phases of farm and home radio now in practice in Puerto Rico will apply in all of the Central American countries. But there is every reason to believe that some of them can be adapted for use. Radio reaches large segments of the population quickly. It is understood by those who cannot read. It can explain why a little fruit fly prevents Señora González from sending a box of guavas to her son in New York or why the Department of Health, fearing the spread of parrot fever, had to wring the neck of the parrot that her daughter sent up from Caracas.

But radio will also tell how to improve crops and how to make better homes. And in that "how" comes better living, better understanding, and better relations for us all.

**One of the thousands of crossroads stores in Puerto Rico where farmers gather in the late afternoon to chat, market, and hear their farm radio program, *Actualidad Agrícola*.**

# Whale Meat—Norway Expands Its Production

*by* **IVAN A. JACOBSEN**

The LONDON TIMES recently posed a question that has probably troubled more than one British housewife in the past few months. "If," queried the TIMES, "cakes are moulded from ground whale steak, what will the end product be: fish cake or meat ball?"

For the average meat-hungry European, the answer to this question is unimportant. For, regardless of shape or habitat, whale meat is "beef"—the flesh of an air-breathing, warm-blooded mammal. This delicacy may soon begin to reach European tables in sufficient quantity to be somewhat helpful in relieving one of that Continent's most aggravating postwar shortages.

In the Norwegian whaling centers of Sandefjord, Larvik, and Tonsberg, where most men go to sea with the Antarctic whaling fleets, one will find the old-timers nodding their heads and commenting on the interesting turn of events. They first tasted the tongue and liver of the whale years ago on the whaling banks, and recounted the experience in a mixture of seriousness and bravado to the youngsters. Now, however, the growing popularity of whale meat, coupled with the system of modern freezing and packaging, is robbing the old seamen of one of their best yarns. Delicacies once reserved for the factory ship or the isolated coastal stations are now becoming available on many European markets and a new industry is growing.

Under present systems of whaling, the beef that has found its way to European tables has come primarily from whaling stations along the Norwegian coast. Geographical proximity has made possible the quick transport and early flensing of whales caught in this area, thus enhancing their value as a food product. It has been found that, for best results, the whale should be bled immediately, cut up, and moved into a freezing plant in a matter of hours. While this is possible at the Norwegian coastal stations, the problem of transport becomes more complex when one considers using the tens of thousands of tons of meat now merely rendered for oil in Antarctica each year. Here, aboard the factory ships of the various whaling nations, detailed experiments are now under way to assist in solving certain of the technical problems.

The Norwegians laid the foundation for this new industry in 1892 when the two whalers, Chr. Christensen and C. A. Larsen, introduced the floating factory and began to carry out whaling operations in the new and as yet untried whaling fields of the Antarctic.

Although whaling on the various whaling grounds the world over has been of great importance, it is completely overshadowed by the development of pelagic, or open-sea, whaling in the Antarctic. It was in the midtwenties that a Norwegian firm introduced pelagic whaling in Antarctica with the floating factory, *Lancing*. The *Lancing* was the first factory ship to operate on the high seas without need of a concession and was the first vessel of its type to be equipped with a slip or ramp, up which the whale could be drawn for flensing and partitioning on deck. Equipped with an evaporator for making its own fresh water, the factory ship became independent of the land station, and modern pelagic whaling became a reality.

Centered about the mother, or factory, ship, the modern whaling expedition is a costly and complicated affair. The newest of these Norwegian factory vessels, the 23,500-ton *Thorshøvdi*, was delivered in mid-October 1948.

With the delivery of this vessel, the Norwegian whaling fleet, which lost 7 of its 10 floating factories during the war, received a final replacement that approximately restored its prewar tonnage. Aboard the *Thorshøvdi* is a complete plant for processing the whale—rendering tanks, refineries, and laboratories. The latest technical equipment and machinery make it possible for the crew to dispose of a 100-ton blue whale carcass in less than 90 minutes. Capacity of the plant when in full operation is from 20 to 25 blue whales daily. Facilities for crew and workmen make the modern factory ship a far cry from the old-time whaler. With cabin accommodations for over 400 men, the ship is in reality a floating city. But it is also a city that is isolated from the rest of the world for nearly 6 months of each year. Special attention has therefore been paid to adequate recreation rooms,

**Mr. Jacobsen is a member of the American Press Section, Royal Norwegian Information Services.**

libraries, well-stocked commissaries, and a powerful radio-receiving unit.

Probably most important to those interested in the future role of the whale, however, are the completely equipped chemical and bacteriological laboratories that have been installed aboard the new vessel. This season, Norwegian bacteriologist Martin Iversen, together with British colleagues to be stationed aboard other vessels, will carry out experiments to determine how whale meat can best be preserved and transported.

To anyone regarding the whale as a source of food, one thing becomes immediately apparent—the tremendous size of the creature. A full-grown blue whale can tip the scales at well over 100 tons. Compared to the largest of land creatures, an average whale will generally outweigh 25 elephants or 150 steers. A great deal of this weight represents meat of varying quality.

According to statistics compiled by the Norwegian engineer, E. Fred. Heyerdahl, who once weighed an 89-foot whale in South Georgia, Antarctica, the weight apportionment is as follows:

| | *Pounds* |
|---|---|
| Meat | 124, 436 |
| Blubber | 56, 550 |
| Bone | 49, 908 |
| Tongue | 6, 962 |
| Lungs | 2, 703 |
| Heart | 1, 391 |

The two muscles running from head to tail and those along the vertebral column supply the "back fillets" generally preferred for human consumption. These particular cuts have less fat than is found in the meat of ordinary "meat" animals, and, correctly prepared for wholesale shipment from the field, they represent not a meat substitute but a new meat source. In fact, the whale's highly vegetarian diet makes meat from the mammal an unusually valuable source of vitamin A. Several factories have produced a vitamin concentrate from lean whale meat. Studies are being made on the prospects of utilizing the whale pancreas as a source of insulin.

**Smaller ships tow whales to the factory ship where they are cut up and processed.**

In the past, oil has been the chief objective of whaling expeditions. All of the whale has been processed for oil. Bone, as well as blubber and meat, is sawn to convenient size. Then it is all put into rendering vats.

This year, the large-scale use of whales for meat is being studied. Careful investigation is being made in the field to determine the maximum period that can be permitted to elapse between the time the whale is harpooned and the time it is lodged in the hold of a refrigerator ship. With the present method of catching, the smaller catching vessels operate from the factory ship and are away for extended periods. During recent years, converted corvettes have accompanied the expeditions to serve as whale tows—a sort of delivery service to speed operations between the catching vessels and the mother ship. Time studies on this operation will do much to predict the feasibility of large-scale freezing of whale meat in Antarctic waters.

There are other technical problems, too. If factory ships are to utilize the whale on the premise that the meat is to be kept and used to the fullest extent, this will—especially late in the season—hamper the extraction of oil. Factory vessels cannot be burdened with the task of storing the meat. It must be transferred to refrigerator ships, once flensing has begun. During periods of bad weather this can be extremely difficult.

In 1948, land stations along the Norwegian coast have provided 8,000 tons of whale beef for Norwegian tables. Because of a domestic meat shortage, all of the product has gone to local markets since the spring of 1948, and whale, prepared like swiss steak or hamburgers, is now a well-established item on the Norwegian menu. Solid and beeflike in texture and taste, whale meat is hard to distinguish from coarse, lean beef.

To what extent it will become possible to utilize meat from the Antarctic catch will depend in large measure upon results of these experiments and one whale availability. If the technological problems can be surmounted, it is reasonable to expect that future whaling expeditions will be joined by fast refrigerated carriers capable of receiving the product within a few hours after the whale is harpooned and keeping it well preserved until delivery may be made far on the other side of the Equator.

INTERNATIONAL

# *Agricultural News*

## Smut Endangers São Paulo's Sugarcane

Smut is spreading through many of the sugarcane fields of São Paulo, the second largest sugar-producing state in Brazil. The disease has cut some yields as much as 40 percent. Growers whose plantations are infested are destroying their cane and planting no grass crops; other growers are using only resistant varieties. The Brazilian Government has set up a cooperative test field to study the disease.

Cane smut spreads rapidly and is difficult to combat. It is produced by a fungus whose spores are carried by the wind, on the feet of birds, and on the clothes of workers. The leaves of the plant curl and turn almost black as the fungus spores accumulate.

According to official estimates, about 6 percent of the world's cane sugar in 1947–48 could have been expected from Brazil. However, since slightly more than a third would have come from São Paulo, smut damage may reduce this percentage substantially.

The first South American country in which cane smut appeared was Argentina, in 1940. In 1946, the disease was found on a sugar plantation in one of the municipalities of São Paulo. In the 1947–48 crop year it attacked the Co. 290 variety, which comprises 70 percent of the sugarcane planted in the state, and thereby became a major hazard.

## Kenaf-Fiber Experiments Are Successful

According to a release from the Cuban Ministry of Agriculture published in the DIARIO DE LA MARINA of Havana, the group of Cuban and American agricultural technicians, working at the Estación Experimental Agronomía de Santiago de las Vegas, have found in kenaf a fiber crop that is adaptable to the climatic conditions of the country and promises a basis for a fiber industry in Cuba.

Kenaf will yield the raw material necessary for the manufacture of twine, sacking, and other related materials. In the judgment of the group, the new fiber can replace jute fiber, which has been imported.

## Foreign Outlets for American Cotton

United States cotton exports may reach 4 million bales in 1948–49, and should not drop below 2.5 million bales annually during the life of the European Recovery Program, according to P. K. Norris, Agricultural Economist of the Office of Foreign Agricultural Relations.

The United States exported an average of about 5.3 million bales annually in the five prewar years ending July 31, 1938, and an annual average of slightly more than 3 million in the three postwar years ending July 31, 1948.

Mr. Norris' views regarding the short-term outlook for United States cotton exports were voiced in an address before the Southern Economic Association's Eighteenth Annual Conference at Atlanta, Ga., November 19, 1948.

The speaker pointed out that Government policy, reflected by the European Recovery Program, would be the most important factor affecting United States cotton exports as long as ERP continued. When it ends, he asserted, and world conditions become more "normal," the United States can expect exceedingly strong foreign market competition.

Mr. Norris said that although domestic cotton consumption might continue high for years to come, the United States would be able to produce a substantial exportable surplus. Foreign demand for this exportable cotton, he said, will be affected by probable increase of cotton production in other countries, dollar shortages in importing countries, and other factors.

Mr. Norris recently returned from a 3-month survey of cotton production and utilization in South America, and earlier in 1948 he visited Western Europe, studying conditions there affecting the market for United States cotton.

## Mexico Campaigns Against Citrus Black Fly

Control of the citrus black fly has been given campaign status in Mexico. A national committee, supported by regional committees, will direct the effort. In the three states infested by the fly (San Luis Potosí, Tamaulipas, and Nuevo Leon) two special taxes are being imposed to finance costs—citrus fruit growers to pay 10 centavos per tree a year, gasoline users to be taxed 1 centavo a liter.

The citrus black fly, a native of South Asia, appeared in Mexico several years ago. It has become a serious pest in some areas, sapping the strength of infested trees and reducing their yield.

The Mexican Government estimates that there are about 10 million taxable citrus trees in the three states (including those not yet in production), yielding a possible annual tax return of a million pesos, plus an additional million and a half pesos to be obtained annually from the gasoline tax.



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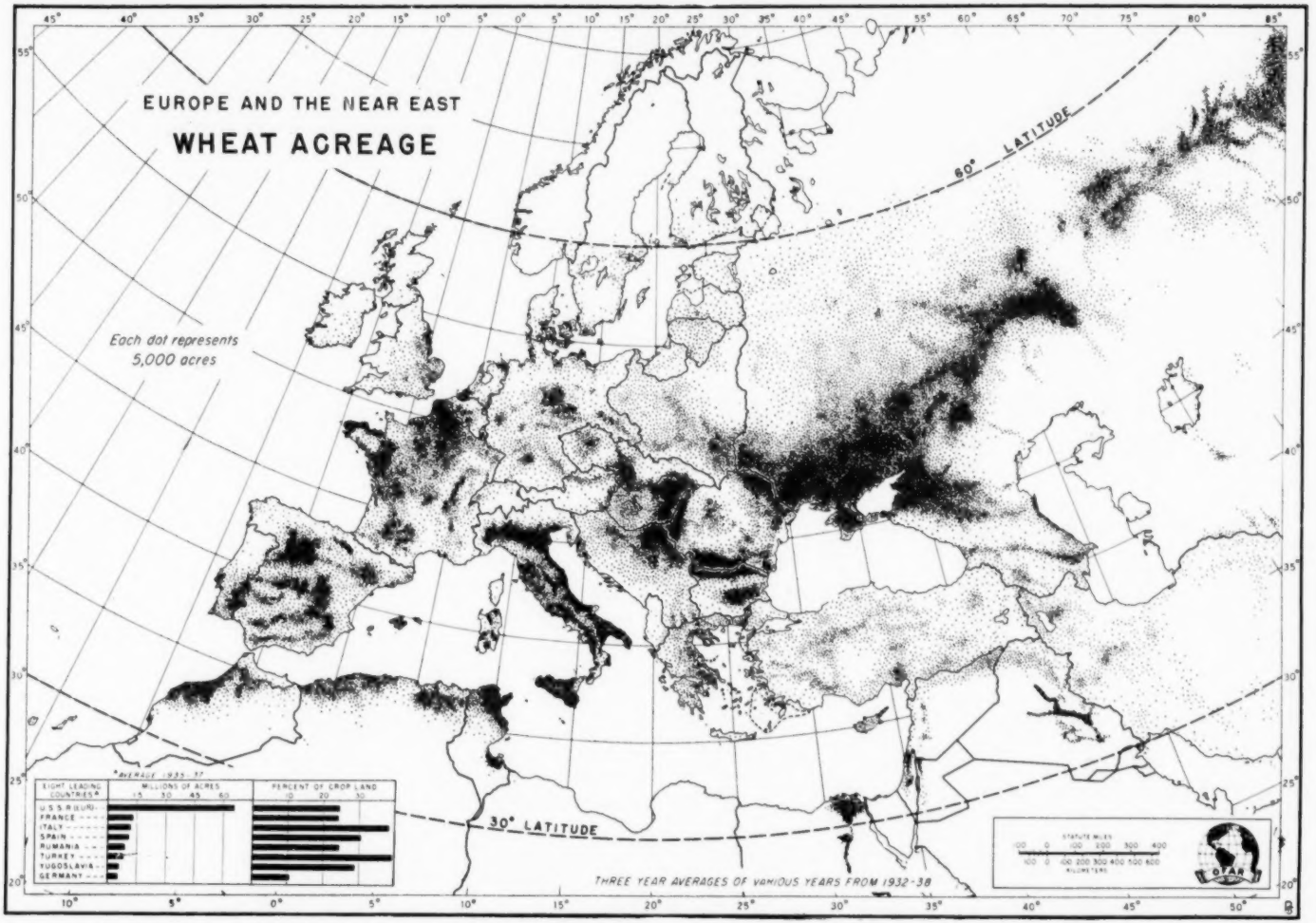


Europe, the Near East, and North Africa accounted for about 169,265,000 acres of wheat, or more than 48 percent of the world's acreage, during the period 1935–37. This figure indicates an increase of about 28 percent over the 1910–14 figure.

For thousands of years, wheat has competed with barley in the Mediterranean region; with rye in western, central, and northern Europe; and with millet in Russia. Wheat has always won. Only corn has been able to divert any acreage from wheat.